THE Chemist

APRIL, 1946 VOLUME XXIII, No. 4

Now you, too, can standardize on PYREX..... REAGENT BOTTLES

YOUR laboratory supply dealer can now fill your requirements of the much wanted "Pyrex" Reagent Bottles. The combination of qualities provided by these bottles has made them the standard for laboratory use. Attractive in appearance, fabricated from Pyrex brand Chemical Glass, No. 774, they virtually "stay new for keeps." They are strong mechanically and chemically stable . . . reagents remain unaffected. Their long-run economy has been definitely established.

Their "LIFETIME RED" labels are *permanent*, an integral part of the glass, legible for life. Two stopper designs, the conventional type and a new improved non-rolling finger grip form—a combination of the flat-head and the penny head types. All stoppers are standard taper, interchangeably ground . . . standard, special or plain labels available.

Consult your regular supply source for prices and delivery data.

T.M. REG. PYREX U.S.PAT.OFF.

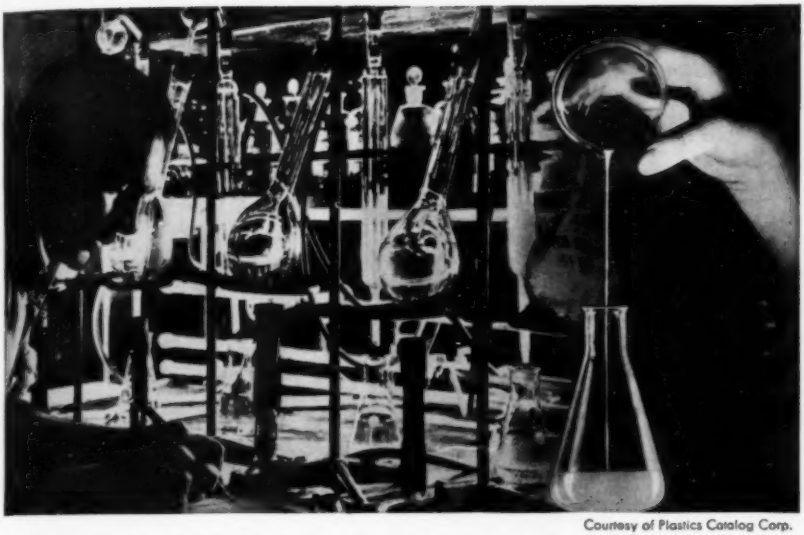
"Pyrex" is a registered trade-mark and indicates manufacture by

CORNING GLASS WORKS • CORNING, N.Y.

PYREX brand LABORATORY GLASSWARE

FOR ALL-AROUND USE • YEAR 'ROUND ECONOMY

CORNING means Research in Glass



Courtesy of Plastics Catalog Corp.

CHEMICAL RESEARCH GIVES PLASTICS NEW OPPORTUNITIES TO SERVE

The advance of the plastic industry has been rapid. Through chemical research and chemical control, present-day plastics appear to have no limits in chemical composition and application.

Some plastics owe their very existence to the use of catalysts—chemicals of predetermined and exacting quality. Other plastics require not merely chemicals of uncompromising uniformity for manufacturing, but analytical reagents with low indexes of impurities to maintain quality control.

Purity defined — not to "maximum limits" — but to the decimal by actual lot analysis. That's the story of the Baker's Analyzed label.

For controlling the quality of several types of plastics, Baker's Sodium Peroxide C.P. Special, calorific grade low in S and SiO_2—or Baker's Perchloric Acid C.P. 70-72%—or Baker's C.P. Nitric Acid—is used because of its extremely low indexes of sulphur, phosphorus and chlorine.

The plastic industry has one specific need—uniformity of product. Therefore, in control work, an actual analysis of each reagent used is vitally important. On each Baker Analyzed C.P. label you have the actual lot analysis, saving the chemist time and trouble.

When you next order your laboratory chemicals, be sure to specify by name Baker's Analyzed C.P. Chemicals. Get reagents with the actual analysis on the label. You will have no difficulty in securing your requirements. The nation's foremost laboratory supply houses stock and sell these well known and highly respected reagents.

J. T. Baker Chemical Co., ***Executive Offices and Plant:*** **Phillipsburg, N. J.**
Branch Offices: **New York, Philadelphia, Boston and Chicago.**

"Baker's Analyzed"

C. P. CHEMICALS AND ACIDS

The Chemist

Publication of

THE AMERICAN INSTITUTE OF CHEMISTS, INC.

60 East 42nd Street, New York 17, N. Y.

Volume XXIII April, 1946 Number 4

Entered as second class matter April 8, 1936, at the Post Office at New York, N. Y., under Act of August 24, 1912. Issued monthly at 60 East 42nd Street, New York 17, N. Y. Subscription price, $2.00 a year. Single copy, this issue $0.25.

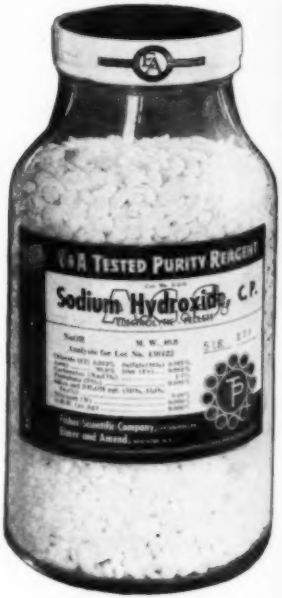
E&A

TESTED PURITY REAGENTS

Meet A. C. S. Specifications

Eimer and Amend Tested Purity Reagents are chemically pure reagents that have been widely adopted for use in laboratories where accurate work is required. Each lot of Eimer and Amend Tested Purity Reagents is analyzed by up-to-date methods with the aid of modern laboratory appliances. The exact analysis—not merely maximum impurities—is stated on the label of each bottle.

These reagents meet American Chemical Society specifications. They save time in analytical work because it is not necessary to run a "blank" with the sample.



E.&A. Tested Purity Reagents were the first in America to bear labels stating exact analysis.

Large and comprehensive stocks of chemicals are on hand for prompt shipment along with other laboratory supplies from:

Manufacturers—Distributors

FISHER SCIENTIFIC CO.
717 Forbes St., **Pittsburgh (19), Pa.**
2109 Locust St., **St. Louis (3), Mo.**

EIMER AND AMEND
Greenwich and Morton Streets
New York (14), New York

Headquarters for Laboratory Supplies

Annual Meeting Program

THE AMERICAN INSTITUTE OF CHEMISTS

MAY 17TH AND 18TH, 1946

at

THE HOTEL BILTMORE, NEW YORK, N. Y.

•

Friday, May 17th

10:00 a.m. Registration. (Registration Fee $1.00). Informal Reception—Fountain Room.

On exhibition: Display of uses of products of the Standard Oil Development Company, such as butyl rubber, Vistanex compounds, alcohols, oils, fog material, incendiary bombs, flame throwers, etc.

11:00-1:30 p.m. Meeting and Luncheon of the National Council — Rooms 110-112.

2:00-5:00 p.m. Annual Meeting — Fountain Room.

President's Address, Dr. Gustav Egloff.

Symposium: "The Professional Status of the Chemist".

A Professor Speaks: Dr. Raymond E. Kirk, Head, Department of Chemistry and Dean, Graduate School, Polytechnic Institute of Brooklyn.

A Consultant Speaks: Dr. Foster Dee Snell, President Foster D. Snell, Inc., Brooklyn, New York.

A Chemical Engineer Speaks: Dr. John M. Weiss, Chemical Engineer, John M. Weiss and Company, New York, N. Y.

The Ohio Chemists Speak: Mr. John D. Coleman, Frigidaire Division, General Motors Company; Chairman, Ohio Chemists' Committee on Professional Practice (OC_2P_2).

A. I. C. Committee Reports and Discussion.

Election of Officers; Introduction of the New President; New Business.

Adjournment.

6:15 p.m. Reception and Cocktail Party to the Medalist, Mr. Robert P. Russell, President, Standard Oil Development Company — Fountain Room.

7:00 p.m. Medal Award Banquet — Ball Room.

Dr. Gustav Egloff, Toastmaster.

Speakers

Maj. Gen. Alden H. Waitt, "Russell in the War Effort". Chief, Chemical Warfare Service.

Dr. Warren K. Lewis, 'Russell As I Know Him". Professor, Chemical Engineering, Massachusetts Institute of Technology.

Dr. Gustav Egloff — Medal Presentation.

Mr. Robert Price Russell — Acceptance Address.

Saturday, May 18th

9:00 a.m. Inspection of the Standard Oil Development Company Laboratories and Plant at Elizabeth, N. J. Through the courtesy of The Standard Oil Development Company, buses will leave the Biltmore Hotel at 9:00 a.m. direct for the inspection trip, and later will return to the hotel. (It will be necessary to have indications in advance as to how many will take advantage of this inspection trip, so that suitable arrangements may be made.)

Chemist and Leader of Men

When he selects research chemists, the president of Standard Oil Development Company looks for a sound and thorough technical background, plus the ability to get along with others. Such men develop in positions of importance and responsibility.

ROBERT PRICE RUSSELL, 1946 recipient of THE AMERICAN INSTITUTE OF CHEMISTS' gold medal ". . . not alone as a chemist and chemical engineer but as an administrator," possesses the scientific ability of a research chemist together with a gift for organization and administration which has carried him to the presidency of the Standard Oil Development Company.

His activities in the field of industrial chemistry and engineering, along his chosen line of petroleum research and development, are a matter of record. The patents granted to him, twenty-three by the latest listing, range from a "Method of obtaining low-boiling oils from higher-boiling oils" to a "Process for the catalytic hydrogenation of hydrocarbon oil and for the reactivation of the catalysts therefor." He was a pioneer in petroleum hydrogenation in this country, and much of his early research contributed materially to the war effort later on.

In addition to being a scientist, Mr. Russell showed early in his career with Jersey Standard that he was also an inspiring leader. Men who worked with him in the late 1920's still say, "Bob used to ride out to work in the bus with the rest of us in the mornings, and he was always so enthusiastic, and so full of plans and pep and go, that the rest of us actually couldn't wait to get to work. He made us want to work hard, and we did, and it was a pleasure working for him."

A pleasing personality and the knack of delegating responsibility have made Bob Russell a top-flight executive as well as a scientist. In gathering men around him in petroleum research, Mr. Russell demands two things. First, they must have a sound and thorough technical background. Perhaps even more important, they must be able to get along with other people.

The men who come to work for the Standard Oil Development Company soon feel the inspiration of Russell's personality. There is a friendly atmosphere around the laboratories, as well as a competitive spirit urging them on. Rewards for achievement are never withheld; Mr. Russell is quick to praise and to go out of his way to mention the good work of an assistant. Many men have advanced in positions of importance and responsibility in the Development Company's laboratories with Mr. Russell's backing.

He is a ceaseless advocate of the "Team Work" method of research. He frowns on the idea of the solitary scientist. When there is a development job to be done, he first sees that it is broken down into its various parts, and that a group of workers is assigned to each part. His instructions to them are to obtain all the available information and background material on the subject—then go to work. The keen competition that ensues between the teams and the men in the teams, he finds, brings the best results.

While he can no longer stain his fingers over the test tubes and retorts in the laboratory, he nevertheless keeps himself acquainted with all the details of work in progress. Charts, diagrams and reports are kept up to date in his office, and his guiding hand and direction are always evident.

Under Mr. Russell's leadership, the Standard Oil Development Company has grown into one of the world's leading organizations devoted to research on petroleum and its products. In addition to new and improved uses for crude oil, the laboratory is also working on the production of liquid hydrocarbons from coal and natural gas, on better synthetic rubbers, and in the field of plastics.

Veteran Re-employment at Goodrich

E. P. Weckesser, administrator of veteran re-employment at the B. F. Goodrich Company, Akron, Ohio, reports that the company has re-employed over 2,800 veterans, and in addition has employed over 6,300 veterans for the first time. About 4,000 veterans are still to be rehired, and the majority of these are expected to return within a few months. "The quality of our returning veterans is as much of a factor in bettering our man-power situation as their quantities," Mr. Weckesser said, "They are excellent men."

Dr. John R. Dunning, associate professor of physics at Columbia University, has received the Medal for Merit, the highest civilian award granted by the President of the United States. The award was made in recognition of Dr. Dunning's "leading part in the initiation of the early phases" of the Manhattan Project.

Possibilities of Future Technologic Development

Watson Davis
Director, Science Service, Washington, D. C.

An abstract of a talk given before the American Association for the Advancement of Science, St. Louis, Missouri, March 27, 1946

THE technologic future is born of the present and the past. We can control the future by what we do now or what we have done. The technologic future is compounded of people, accumulated and accumulating knowledge, the raw and processed resources of the earth, and our modes of thinking and doing.

The priceless ingredient of the future is the human factor. Civilizations are what their populations make them. All men may have been created equal in the eyes of the law, but it is not undemocratic to point out that there are vast individual differences.

The ability to do creative scientific research is rare indeed, although it may be more widespread than many have thought possible. An interest and ability in any phase of technology, science, medicine and allied fields is to be cherished. Yet what did we do with this ability during the war and what are we doing now?

Dr. M. H. Trytten, director of the National Research Council's Office of Scientific Personnel, said that several hundred GIs, highly trained persons destined for overseas front line infantry duty, who were plucked from an assignment pool at a critical time, stood between success and failure of the Manhattan District project (of the atom bomb). This is a dramatic demonstration of how the leaving of technical personnel decisions to technically incompetent local draft boards has robbed us of thousands of scientists of the future. There is and will be for some time an appalling shortage of scientific manpower. Progressively the flow of trained manpower in science was reduced, just when the greatest results of science applied to war were being rushed to the battlefields.

Scientific manpower is being wasted in time of peace. Some of the most essential young men in the great war projects of the OSRD have been rescued from the postwar draft only with great difficulties. Some have been swallowed up ruthlessly in the postwar Army. This misuse of potential scientific manpower is continuing. Selective service boards are snatching young men, regardless, when they reach eighteen. The possibility of a science-talented young man getting

to college promptly for training for great future usefulness is less promising in many cases than it was during the war.

Even worse is the lack of any wide-spread serious effort to persuade science talented youth to do something about their potentialities in the interest of civilization. We are told that there is a shortage of 15,000 scientists. This is far more serious than a shortage of sugar or wheat and it gets much less thought. The major problem of the continuing supply of scientific personnel has all but been neglected.

A great deal more must be done, if we are to have enough scientists in the future to do the needed fundamental basic research that must be government-and foundation-supported in non-commercial research laboratories, and to fill the beautiful and monumental research laboratories that industries are building in such magnificent profusion.

The very essence of our scientific continuity is contained in the stores of our accumulated scientific knowledge, whether these be in our libraries of technical and scientific literature, our patents, our secret war archives, or the minds of men. Scientific intelligence is fundamental to any planning of research in a broad sense, Paramount is the necessity of putting a certain amount of scientific brainpower at work on this service activity.

We need a balance sheet of irreplaceable materials of our civilization and vigorous effort to get ourselves and our world neighbors in a good material position. This is a major, immediate job.

Ideas and modes of thinking are so important in science, technology, and everything else we do that we may take them for granted. Human nature is the root of all good and evil. It makes wars and peaceful living.

Mathematics occupies its key place in science because it is a manner of thinking. Scientific thinking is useful outside the laboratory. To the extent that it is used in world relations, government, industry and other human affairs there will be more peaceful living. Scientific thinking is not all harsh, blunt, unemotional and uninvolved. The processes of human thought are not yet charted and logically understandable.

Part of the troubles of the world come from the stern logical approach to human affairs. We need psychologists and psychiatrists, as well as economists and atomic physicists, to guide our statesmen in their dealings with themselves and others.

About a year ago, two thousand American psychologists issued a statement on "Human Nature and the Peace." They told us: War is not unavoidable, since it is built into men not born in men. To build peace, work with the rising genera-

tion. Hatreds, racial, national and group, can, to a considerable extent, be controlled. Condescension toward "inferior" groups destroys our chance for a lasting peace. Liberated and enemy peoples must participate in planning their own destiny. The man in the street knows the general directions in which he wishes to progress and his expressed aspirations should be a major guide to policy.

The basic principles of human nature can be studied and, to a degree, understood as a guide to getting along without conflict. This is a study potentially as important as any other research project in the world.

While we talk of world affairs, we could use a considerable amount of understanding of human nature close to home in order to avoid labor-industry conflicts, race prejudices, and economic and political intolerance. This whole intricate human nature problem is one of the least explored areas of science. There are many unworked fields in the scientific landscape.

Our scientific research as a whole is so unplanned and distressingly laissez-faire. What is needed is the kind of planning that points out the opportunities and sets up challenging problems.

The science bills before Congress contain much of the hope for a vigorous support and utilization of science in the interests of the people in a peacetime world. The National Science Foundation bill (S.1850) provides the organization and the sinews to carry on basic scientific research in universities and non-commercial laboratories. It can implement the information services needed by science and technology. It would cherish and nurture our science talent so sorely needed.

The real future for technology is contained in the fundamental science of today and tomorrow. The scope of all knowledge and the wide range of human thought constitute the basic foundations of future technology.

So I list a few of the blind spots in man's knowledge, a few unknowns worthy of our most skillful and energetic probings.

1. *Living longer*: The prolongation of life, the retarding of old age, the prevention of premature senility, which means the conquest of degenerative diseases, among them cancer, heart and circulatory disorders, nephritis, arthritis, and diseases of the respiratory system and the brain. We should be able to live and work a half-generation longer.

2. *Virus conquests*: Least controlled of all infectious diseases are those caused by viruses, such as colds, poliomyelitis.

3. *Healthier personalities*: Mental ills, ranging from chronic grouches to disabling psychoses, take major tolls. Disordered personalities have physical, mental, and emotional bases. Mentally warped personalities give

rise to crimes against society, including making of wars.

These are concerned with the discovery of the substance of the universe:

4. Exploration of the elements: New chemical elements are still to be discovered. Transmutations (not alone uranium) and properties of older elements need exploration. Undiscovered sources should be sought for elements little-used because scarce. Particles within the atomic nucleus yet unidentified may exist.

5. Exploration of the universe: The impact of astrophysical knowledge of the universe around us may be more philosophical or religious than technologic, but sun, stars and galaxies have their down-to-earth effects. Experiments of immense time and size are in progress.

And here are a few major scientific mysteries:

6. *The secret of photosynthesis*: Despite the energy released from within two atomic nuclei, our main source of energy is the sun, whose radiation is converted by photosynthesis in growing plants, a process we do not understand and can not duplicate in any factory.

7. *The secret of protoplasm*: The living cell is the seat of life itself. An explanation of its protoplasm may explain life. Nuclear chemistry of the living cell may be more revealing than nuclear chemistry of the elements.

These concern in great degree the world community:

8. *Automatism*: The lever, wheel and such simple devices were beginnings; steam, electrical and internal combustion engines were further steps; the electron tube is the prime servant of automatic operation... Automatic operation applied to factory, farm, and home, assuming the burden of human drudges, may give time for more creative thinking and doing.

9. *World brain*: Civilization's memory is in its records, its book, its literature, its handed-down lore and customs. Overburdened human brains forget. Our world organization or disorganization of knowledge has its lapses of incomplete records, its Babel of languages, its geographical stagnation, its confusion of classification and its overpowering bulk. The intelligence of the world may be intelligent enough to mobilize for use of its intelligence.

10. *Pyschological welfare*: In the stress of war, all the skill of psychological interpretation (propaganda, if you will) and all the machinery of mass communication are devoted to world-wide mutual understanding (of our side). This psychological warfare needs to become psychological welfare, a process of

peoples knowing and understanding within and across man-made borders. This will be the essence of peace, which history shows is one of the greatest of unknowns, worthy of the most intense and earnest scientific research.

Department of Commerce Creates Incentive Division

Charles E. Brokaw of Denver, Colorado, has been appointed head of a new Incentive Division in the Office of Domestic Commerce, Washington, D. C. to study and report on bonus, profit-sharing and other incentive systems used or to be used to promote greater production, distribution, and consumption of goods. Secretary of Commerce Henry A. Wallace, in announcing this appointment, said "we must have a sustained increase both in the production and the consumption of needed goods... The Department of Commerce proposes to undertake a thorough examination of (incentive) programs, and of the possibilities which exist in the whole idea of providing incentives for greater production and better distribution."

Polytechnic Fellowships Available

Applications for the du Pont postgraduate fellowship in chemistry awarded to the Polytechnic Institute of Brooklyn, for the 1946-47 academic year, will be accepted up to the first of June, it was announced by Dr. Raymond E. Kirk, F.A.I.C., dean of the Graduate School and head of the Department of Chemistry. The fellowship provides tuition plus a $1,200 stipend for a single person or $1,800 for a married person.

Mattiello Wins Meritorious Civilian Service Award

Joseph J. Mattiello, F.A.I.C., technical director, Hilo Varnish Corporation, Brooklyn, N. Y., was presented with the Meritorious Civilian Service Award, by General Georges F. Doriot, chief of the Research and Development Branch, Military Planning Division, Office of the Quartermaster General, on February 13th.

The citation of the award to Dr. Mattiello reads, "For outstanding services in solving the protective coating problems confronting the Quartermaster Corps. With exceptional resourcefulness and ingenuity, he assisted the Quartermaster General in developing satisfactory organic coatings and methods of application to quartermaster items, with particular emphasis on the precoating program."

Since July, 1942, Dr. Mattiello has been consultant on protective coatings to the Plastics Section, Research and Development Branch, Military Planning Division. During this time, he directed research and development on paints, varnishes, and lacquers used on Quartermaster equipment. He was also a member of the Advisory Board.

"Political" Scientists

The atomic bomb is "making politicians of scientists and scientists of politicians." What the result will ultimately be one dare not even venture to guess. Perhaps the education both will get will help all of us. It is significant, however, that American scientists are appreciating their responsibility to humanity in general, as indicated by the following preamble to the Constitution of the newly formed American Federation of Scientists:

"The Federation of American Scientists is formed to meet the increasingly apparent responsibility of scientists in promoting the welfare of mankind and the achievement of a stable world peace.

"The value of science to civilization has never been more clear, nor have the dangers of its misuse ever been greater.

"The Federation is concerned with so placing science in the national life that it may make the maximum contribution to the welfare of the people.

"The need for a more active political role of the scientists has been brought into sharp focus by the atomic bomb. An immedate concern of the Federation must be the problem of atomic energy.

"We therefore hold these aims:

1. In the particular field of atomic energy, to urge that the United States help initiate and perpetuate an effective and workable system of world control based on full cooperation among all nations.

2. In consideration of the broad responsibility of scientists today, to study the implications of any scientific developments which may involve hazards to enduring peace and the safety of mankind.

3. To counter misinformation with scientific fact and, especially, to disseminate those facts necessary for intelligent conclusions concerning the social implications of new knowledge in science.

4. To safeguard the spirit of free inquiry and free interchange of information, without which science cannot flourish.

5. To promote those public policies which will secure the benefits of science to the general welfare.

6. To strengthen the international cooperation traditional among scientists and to extend its spirit to a wider field.

"We shall endeavor to keep our members informed on legislative proposals and political developments which affect our aims and to cooperate with other organizations for the achievement of these aims."

Further evidence of this increasing interest of scientists in political matters is found in the formation of various State associations, such as the Association of New York Scientists, which are being formed in various fields.

The Human Factor in Production

Dr. Johan Bjorksten, F.A.I.C.

Owner, Bjorksten Laboratories, Chicago, Illinois

A preface to THE AMERICAN INSTITUTE OF CHEMISTS' Panel
Chicago Production Show, March 22nd

ACCORDING to an estimate, only thirty per cent of the processes reported out of the laboratory will ever reach successful production. The others will either fall by the wayside before they reach production, or they will fail within a few months after manufacture. Yet, by the time these processes that ultimately fail are out of the laboratory, a great deal of time and money has been invested in them. If this seventy per cent of failures could be screened out at the beginning, the total development cost would be reduced to less than a third of the preesnt.

Any process which is reported out of the laboratory must have a great deal in its favor. To be carried through the laboratory, it must have looked exceptionally good both from a management and from a research angle. Why do only thirty per cent of the processes reported out of the laboratory ever reach full-scale production?

The speakers who follow will cover the technical phases of the development from laboratory to production. I will touch briefly upon some of the human aspects and responsibilities.

Failures in the practical use of laboratory development are sometimes due to a lack of correlation with merchandising plans, but more often to divided authority, and particularly to delays in committees.

As most of you know, a committee is a group of people who do not know too much about the subject on which they are to make a decision, at least not as much as the chemist or engineer who has worked on it for years. Yet, if the committee recommends that the company go ahead with a project, and it fails, responsibility will rest heavily on those committee members who voted for it. If the committee turns down the proposition, no one can prove for a long time, if ever, that the project would have been successful, and therefore, the best way to avoid sticking one's neck out in a committee is to vote no on everything.

This naturally negative inclination of any committee is one of the major delaying and deterring factors that we encounter in taking a development

from the laboratory to production. The remedy is obvious. If you have to have a committee, keep it small, but for vigorous growth the power to say "Yes" or "No" on any project should rest in one man of proven merit.

A large percentage of the processes that are put into production will subsequently linger or die because of poor economics. The resiliency of a process will depend upon whether it has been worked out to meet changing conditions. Its survival is related to the way the process was worked out in the pilot stage between the laboratory and production on a large scale.

As helpless as the chemist or engineer may be when stymied by a committee, once he has received authority to proceed, he is the master. Once he has worked out a path to be used in production, there will be a great and obviously justifiable resistance to any change from it, whether for the better or worse.

Two months ago, several steel coke ovens were lost at Joliet, Illinois. The maintenance crew could not get through a picket line. Fires went out. Thermal contraction broke masonry, and twenty million dollars' worth of equipment was destroyed. As technical men, we are not now concerned with who was right or wrong in that particular dispute, but the point I wish to bring out is the inadequacy of development of those ovens, their vulnerability, the lack of automatic equipment to take on where human hands left off.

The man who takes a process from the laboratory to the plant has the responsibility of working out the operating mechanism. He can make the process safe, self-contained; he can make it tricky, a mere increase in size of his crucibles and beakers. It is all up to him. These responsibilities we must face squarely. They rest on those of us who pilot a process or a product from laboratory to production, or who supervise or direct such development.

Those steel coke ovens at Joliet, that were destroyed because of insufficient instrumentation, handled relatively slight amounts of power. But today we stand on the threshold of an era where tremendously larger forces must be harnessed.

Ten or twenty years hence the failure of a maintenance force to get through to a plant may result in the destruction of a county. Or, a more probable situation, Operator Jack quits twenty minutes early because he has a date with his Jill. He forgets to turn off the neutron valve of his atomic furnace, and the city that *was*—was Chicago!

The human being is a wonderful multi-purpose machine. In versatility, nothing excels it. But this marvelous versatility has been achieved at the cost of dependability. The circuits in our brains are just too

many, the neural relays too delicate, to match the sturdy dependable ruggedness of electro-mechanical devices which we can use for any specific operation or task.

We might ask a professional inventor to build us one single machine, which can typewrite, telephone, make mathematical calculations, swim, dig ditches, shovel coal, indeed, reproduce itself. If we asked for such a machine, the inventor would consider our request not at all impossible—but very silly. There is no need for combining such different capabilities in one single machine, Such functions can be handled much more effectively by a number of separate mechanisms, each rugged, clean-cut, foolproof.

Looking at the matter from a technological standpoint only, there is no justification for use of the multipurpose machine we call a human on any routine production task. With photoelectric cells to see, relays to coordinate, and integrators to evaluate, machines can be devised right now which are capable of handling any predictable contingency, and of sounding an alarm in the event of unpredictable needs.

You may ask, "But what about technological unemployment?" If others do their part, as we will do ours, there can be no technological unemployment until everyone in the world has everything he wants of everything there is. When that day comes, we shall have gained the experience and wisdom to cope with whatever new problems may arise.

Increased mechanization is being forced upon us inexorably, by the sound necessity for increasing human standards as well as by compulsion of self-preservation. When a human error can mean extinction of a city, the human element must be eliminated in process planning. There is no turning back. We must follow the path before us, trusting that the prophetic lines of Kipling, about machines, will come true:

"Although their smoke may hide the heaven from our eyes
It will vanish and the sun will shine again,
For with all their power and weight and size
They are nothing but the children of our brain."

John M. Weiss, F.A.I.C., spoke before The American Institute of Chemical Engineers at Baton Rouge, Louisiana, on March 21st, and before a joint meeting of The American Institute of Chemical Engineers and the American Chemical Society at New Orleans, Louisiana, on March 22nd. His subject was the professional problem of the engineer in connection with unionization and the value of state licensing.

Fischer Receives Miami Valley Chapter Award

Dr. Martin Henry Fischer, F.A.I.C., noted research worker and member of the faculty of the College of Medicine of the University of Cincinnati, received the 1946 Award of Merit, established by the Council of the Miami Valley Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, in commemoration of his nearly fifty years of outstanding service to the science of chemistry and the profession of chemist in the United States. The award was presented at a meeting and banquet held in Cincinnati on March 30th.

Dr. Fischer was born in Kiel, Germany, November 10, 1879. He received the M.D. degree in 1901 from Rush Medical College. From 1900 to 1901, he was Holmes scholar at the Marine Biological Laboratory; Cutter lecturer at Harvard in 1917; lecturer at New York University in 1931; assistant professor at the University of California from 1902 to 1905; professor of pathology at Oakland College of Medicine and Surgeons from 1905 to 1910; and since 1910, physiologist on the faculty of the College of Medicine at the University of Cincinnati.

His research work has encompassed the toxic effects of formaldehyde; artificial alimentary excretion; edema, nephritis, glaucoma and coma; theories of growth, muscular contraction and hemolysis; absorption and secretion of water and dissolved substances in plants and animals; water absorption by colloids; emulsions, soap and indicators; physico-chemical properties of water soluble substances and protoplasm; theory of lyophilic colloids; fatty degeneration; focal infection; technique of the fine arts; livering plants; production of base-protein-acid compounds; and study of the protein nature of catalase.

Among his honors, Dr. Fischer has the distinction of having received the Gold Medal of The American Medical Association in 1913, the Diploma in 1915 and in 1920, and the Silver Medal in 1916. He was winner of the Nathan Lewis Hatfield Prize of the Philadelphia College of Physi

cians in 1909; the Cartwright Prize of the College of Physicians and Surgeons of Columbia University in 1944; the Diploma of the Ohio Academy in 1923; and the International Prize of the Kolloid-Gesellschaft in 1924.

Dr. Fischer has been particularly active over many years in the professional aspects of chemistry. He belongs to many societies and has contributed much to the cause of professionalism for the chemist in years when such activities were infrequent.

Nominations Requested for John Wesley Hyatt Award

Nominations are open for the 1945 John Wesley Hyatt Award for outstanding achievement in the plastics industry. The award, sponsored by Hercules Powder Company, consists of a gold medal and $1,000, and was created to honor the individual who has made outstanding contribution to the plastics industry during the preceding year. Entry blanks are available from the Secretary, William T. Cruse, 295 Madison Avenue, New York 17, N. Y.

Yaeger Joins Bjorksten Laboratories

Luther L. Yaeger, formerly associated with the Youngstown Sheet and Tube Company, has joined the staff of Bjorksten Laboratories, Chicago, Illinois, as research chemical engineer in the Plastics Department.

Chemical Warfare Association Organized

The Chemical Warfare Association was organized on February sixth, with Major General Alden H. Waitt, chief of the Chemical Warfare Service, as honorary president and Colonel Herbert K. Bear as temporary president.

The purposes of this new association are: To perpetuate the friendships, memories, and traditions of the Chemical Warfare Service, to collect and disseminate useful knowledge with respect to chemical warfare; to foster cooperative endeavor among its members and with industry, and to sponsor new developments to increase the efficiency of chemical warfare.

The association will publish *The Chemical Warfare Journal,* which will feature the progress of chemical warfare research, news, and accomplishments of chemical troops in World War II.

Local chapters have been organized in Denver, Colorado, New York, N. Y., and Washington, D. C.

Redmon at Massachusetts State

Byron C. Redmon, F.A.I.C., formerly Group Leader of the Cyanamid Derivatives Group, Chemical Research Division, American Cyanamid Company, Stamford, Conn., is now Professor of Chemistry at Massachusetts State College, Amherst, Massachusetts.

Ipatieff Again Recognized

Recognition is again being accorded to Professor Vladimir N. Ipatieff, F.A.I.C., by the Soviet Government which, in 1937, deprived him of membership in the Russian Academy of Sciences because he refused, after becoming an American citizen, to return to his native land at government command. Professor Ipatieff since 1930 has been associated with Universal Oil Products Company of Chicago.

While no official word concerning his status has come from Moscow, a change of attitude toward him in scientific circles is indicated. Recently the Bulletin of the Academy of Sciences, U.S.S.R., Division of Chemical Sciences, 1945, No. 3, included the following paragraph by S. A. Pogodin:

"In connection with the expansion of chemical researches the Academy instituted in 1916 a third chair of chemistry and to occupy it V. N. Ipatieff, professor of the Artillery Academy and a student of A. E. Favorskii, was elected. In his person the Academy obtained an outstanding research man, who created an original direction of research in organic chemistry. The principal fields of research of V. N. Ipatieff include processes occurring in organic substances at high temperatures in the presence of catalysts. Ipatieff is also a pioneer of high pressure chemistry. With the aid of a simple and ingenious apparatus constructed by him (Ipatieff's bomb), chemical reactions can be investigated at high temperatures and pressures. The work in this field is of great significance for the chemical industry, and it was extensively developed in the Soviet period."

The Louisiana Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, at its meeting held March 26th at Tulane University, New Orleans, Louisiana, voted unanimously to take immediate steps for state licensing of chemists in Louisiana.

Preceding the meeting, the Chapter tendered a dinner to the speaker of the evening, Dr. Robert J. Moore, F.A.I.C., at Maylie's Restaurant. Dr. Moore spoke on "The Licensing of Chemists." Dr. C. S. Williamson, F.A.I.C., former professor of chemical engineering at Tulane University, presided.

A symposium on corrosion resistant paints is being presented at Polytechnic Institute of Brooklyn in three Saturday morning sessions, April 6th, April 20th, and May 4th, under the auspices of the Department of Chemical Engineering. Henry Fleming Payne, F.A.I.C., technical editor, American Cyanamid Company, and instructor of chemical engineering at the Polytechnic Institute, is chairman of the meetings.

Necrology

N. A. Laury

N. A. Laury, chemist, Calco Chemical Division of American Cyanamid Company, Bound Brook, N. J., died January 26th, at the age of fifty-nine. He was born in Burlington, Vermont, and received the B.S. degree from the University of Vermont in 1900. After twenty years with General Chemical Company, New York, and a year and a half at Aetna Explosives and Hercules Powder Company at Wilmington, Delaware, he entered the consulting field for five years.

Following this experience, he joined Calco Chemical as manager of the acid department. He specialized on sulfuric and hydrochloric acid plant construction and process development. He was author of a number of technical articles and of the A.C.S. monograph, "Hydrochloric Acid and Sodium Sulfate." He became a member of THE AMERICAN INSTITUTE OF CHEMISTS in 1928.

George E. May

George E. May, 65 Sullivan Avenue, Forty Fort, Penna., died May 9, 1945, at the age of thirty-seven. He was born in New Castle, Indiana. He attended De Pauw University from which he received the A. B. degree and Cornell University from which he obtained the Ph.D. degree. For the following five years, he taught at Cornell University, and then at Berea College where he served as acting associate professor of chemistry during the second semester of 1935-36. In that year he joined the staff of Hibbing Junior College, Hibbing, Minn., as instructor in chemistry until 1941. Dr. May specialized in organic and physical chemistry. He became a member of THE AMERICAN INSTITUTE OF CHEMISTS in 1940.

Frederick C. M. Smithson

Frederick C. M. Smithson, head of the Chemistry Department, State School of Mines, Socorro, New Mexico, died November 20th at the age of fifty-one. He was born in London, England, of American parents. He received the A.B. and M.S. degrees from Illinois Wesleyan University, at Bloomington; and the Ph.D. degree from the University of Chicago. He also Studied at the University of Illinois and the University of Cornell.

Dr. Smithson served on the faculties of Illinois Wesleyan University, the University of Louisville, Wabash College, and the University of New Mexico, until in 1934 he became head of the Chemistry Department of the New Mexico State School of Mines. He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1938.

COUNCIL

OFFICERS

President, Gustav Egloff
Vice-president, Donald Price
Secretary, Lloyd Van Doren
Treasurer, Frederick A. Hessel
Honorary Secretary, Howard S. Neiman

COUNCILORS

Stuart R. Brinkley	Frank O. Lundstrom	Norman A. Shepard
Harry L. Fisher	Harry B. McClure	W. D. Turner
Donald B. Keyes	Robert J. Moore	James R. Withrow
Raymond E. Kirk		John H. Yoe

CHAPTER REPRESENTATIVES

New York	*Niagara*	*Pennsylvania*
Elmore H. Northey	James Ogilvie	J. M. McIlvain
Washington	*Chicago*	*Miami Valley*
Walter J. Murphy	Martin DeSimo	E. L. Luaces
Baltimore	*Los Angeles*	*Louisiana*
Maurice Siegel	Albert Salathe	Harold A. Levy
Northern Ohio	*Western Pennsylvania*	*New Jersey*
M. J. Bahnsen	W. H. Hill	Horace E. Riley

March Meeting

The 226th meeting of the National Council of The American Institute of Chemists was held on Tuesday, March 5, 1946, at 6:30 p. m. at The Chemists' Club, New York, N. Y.

The following officers and councilors were present: Messers: F. A. Hessel, W. H. Hill, D. B. Keyes, J. M. McIlvain, R. J. Moore, E. H. Northey, D. Price, H. E. Riley, M. Toch, and L. Van Doren. Mr. Arthur Schroder and Miss V. F. Kimball were present.

In the temporary absence of Dr. Price during the early part of the meeting, Dr. F. A. Hessel presided.

Upon motion, the minutes of the

previous meeting of the Council were accepted.

The Secretary reported on membership, and presented several letters.

A letter from the American Institute of Mechanical Engineers, inviting the Institute to attend the AIME meeting on March 27th in New York was read and referred to the New York and New Jersey Chapters of the INSTITUTE.

The Special Committee on Employee Benefit Plans which might be of interest to the staff of the INSTITUTE reported negatively, as such plans would require too heavy financing at present.

Dr. Price, vice-chairman, at this time took over the chair from Dr. Hessel and continued the meeting.

The Treasurer's report was presented and accepted.

Upon motion made, seconded, and carried, Mr. Schroder's resignation as of April 1, 1946, was accepted with regret and with appreciation for services rendered.

The Secretary read the report of the Executive Director on the Institute's activities during the past year. Upon motion, this report was referred to THE CHEMIST for publication.

The Secretary read a report from Mr. H. S. Neiman, chairman of the Committee on Constitutional Revision. Upon motion, this report was accepted with the request that it be passed on to the membership of the Institute.

The Executive Director reported that correspondence was still being carried on with the Committee on Proposed Federal Civil Service Classification and Promotion of Chemists.

Dr. Moore presented the report of the Committee on the Annual Meeting and submitted the program for that event. A vote of thanks was extended to Dr. Moore and his Committee for their work in connection with the Annual Meeting and Medal Award arrangements.

The Executive Director reported that the INSTITUTE's booth at the Chemical Exposition was successful, and that it brought many inquiries from potential members. He also reported that the INSTITUTE had made beneficial contacts with other organizations whose problems are similar to ours.

Dr. Riley reported as chairman of the New Jersey Chapter of the INSTITUTE, and stated that it would be helpful if the Council would suggest to the Chapters certain objectives which they couuld use as a guide in preparing programs and carrying on activities.

The chairman was requested to appoint a Chapter Advisory Committee to consist of five members.

A letter from Dr. Northey regarding the report of the Committee on Contracts was presented. It was requested that a copy of this letter be sent to each councilor for consideration, with the information that action

is to be taken on this at the next meeting of the Council.

Dr. McIlvain reported that it was difficult to find free evenings for meetings in the Philadelphia area and that conflicts between technical societies' meetings were frequent.

Dr. Northey reported briefly on the activities of the Committee on Employer-Employee Relations.

Upon motion made and seconded, the following new members were elected:

Fellows

Addinall, Carl R.,
Assistant Director, Research and Development, Merck and Company, Inc., Rahway, N. J.

Arnold, Ambrose A.,
Patent Attorney, Pennie, Davis, Marvin and Edmonds, 247 Park Avenue, New York 17, N. Y.

Batley, Harry Alexis,
Manager, Coordinating Division, National Oil Products Company, 1st and Essex Streets, Harrison, N. J.

Baulknight, Charles W.,
Research Associate, Mellon Institute, 4400 Fifth Ave., Pittsburgh, Penna.

Bender, Max
Chemist, Interchemical Corp., 432 W. 45th Street, New York, N. Y.

Coleman, Harold Mitchell,
Research Chemist, Armour and Co. Laboratories, 1425 W. 42nd Street, Chicago, Ill.

Dohan, Jerome
Plant Manager, Mutual Chemical Co. of America, 201 West Side Ave., Jersey City, N. J.

Durban, Sebastian Anthony,
Chemist, Great Lakes Carbon Corp., Research and Development Lab., 8210 N. Austin, Morton Grove, Ill.

Gilbertson, Lyle Ithiel,
Research Supervisor, S.A.M. Labs., Carbide and Carbon Chemicals Corp., P. O. Box No. 41, Station J, New York 27, N. Y.

Greco, Philip Anthony,
Head of Biochemical Department, The Fleischmann Labs., 810 Grand Concourse, New York 51, N. Y.

Haddox, Crandall Lavant,
Lieutenant, Navy. Plant Resident Officer, Elk Refining Co., Falling Rock, West Virginia.

Hockett, Robert Casad,
Scientific Director, Sugar Research Foundation, Inc., 99 Wall Street, New York, N. Y.

Karr, Walter G.,
Director, Research Laboratories, Smith, Kline and French Labs., 800 No. Delaware Avenue, Philadelphia 23, Penna.

Kjellstrand, Arthur Gustav,
Chief Chemist, Buckeye Ribbon and Carbon Co., 1468 E. 55th Street, Cleveland, Ohio.

Kornett, Peter J.,
Chemical Engineer, Oakite Products, Inc., 22 Thames Street, New York, N. Y.

Laug, Ernst

Chemist, Socony Vacuum Oil Co., Inc., 412 Greenpoint Ave., Greenpoint, N. Y.

Lefrancois, Philip Andrew

Research Chemist, The M. W. Kellogg Co., Box 469, Jersey City 3, N. J.

McCauliff, Eugene,

Technical Sales Director, Glyco Products Co., Inc., 26 Court Street, Brooklyn 2, N. Y.

McLean, David A.,

Member of Technical Staff, Bell Telephone Laboratories, Murray Hill, N. J.

Meyer, Erich

Director of Industrial Research, L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.

Namm, Edward

Senior Research Chemist, F. H. Levey Co., Inc., 222 44th Street, Brooklyn, N. Y.

Price, Edwin O.,

Captain, U. S. Army Air Forces, Adams Field, Little Rock, Arkansas.

Robertson, Clifford J.,

Research Chemist, E. F. Drew & Co., 412 Division St., Boonton, N. J.

Seigle, Leon Wm.,

Research Chemist, National Aniline Division, Allied Chemical and Dye Corporation, 40 Rector St., New York.

Smyers, William Hays,

Patent Solicitor, Standard Oil Development Company, Hersh Tower, Elizabeth, N. J.

Stehle, John J.,

Research Chemist, Smith, Kline and French Laboratories, 35 Poplar Street, Philadelphia, Penna.

Steuber, Henry Noyes,

Production Manager, American Dyewood Co., Main Street, Belleville, N. J.

Taylor, Herbert William, Jr.,

Research Chemist, Smith, Kline and French Labs., 35 Poplar Street, Philadelphia 23, Penna.

Thomas, Walter William,

Research Chemist, E. I. du Pont de Nemours and Co., P. O. Box 71, New Brunswick, N. J.

Whitford, Earl L.,

Director of Sales, Oldbury Electro-Chemical Company, Buffalo Avenue, Niagara Falls, N. Y.

Willets, William R.,

Chemist, Technical Service Laboratories, Titanium Pigment Corp., 99 Hudson Street, New York 13, N. Y.

Members

DeSimone, John Anthony,

Chemist, Standard Brands, 810 Grand Concourse, New York, N. Y.

Dooley, Harry H., Jr.,

Radium Chemist, United States Radium Corporation, 535 Pearl Street, New York, N. Y.

Greenspan, Joseph

Chemical Engineer, Sealtest, Inc., 1403 Eutaw Place, Baltimore 17, Maryland.

Jackel, Simon Samuel,

Chemist, Fleischmann Laboratories, 810 Grand Concourse, New York 51, N. Y.

Kishbaugh, Clyde D.,

Technical Representative, Glyco Products Co., Inc., 26 Court Street, Brooklyn 2, N. Y.

Neidig, Charles Petersen,

Development Division, Heyden Chemical Corp., River Road, Garfield, N. J.

Thompson, Byron N.,

District Manager, Sharples Chemcals, Inc., 551 Fifth Avenue, New York, N. Y.

Wissow, Lennard J.,

Organic Research Chemist, National Foam System, West Chester, Penna.

Associates

Clark, Ronald L.,

Research Chemist, Heyden Chemical Corporation, Garfield, N. J.

Dipner, Charles David, III,

Research Assistant, M. W. Kellogg Company, Ft. Danforth Ave., Jersey City, N. J.

Magnus, Percy C.,

President, Magnus Mabee and Reynard, Inc., 16 Desbrosses Street, New York 13, N. Y.

Reinstated As Fellow

McGinn, Charles Edward,

Research Chemist, National Aniline Division, Allied Chemical and Dye Corporation, Fordham University Department of Chemistry, New York, N. Y.

Raised From Member to Fellow

Levitt, Leonard Sidney,

Technical Representative, Glyco Products Company, Inc., 912 Morris Bldg., Philadelphia 2, Penna.

Raised From Associate to Fellow

Alexander, Mary Loretta,

Research Librarian, Universal Oil Products Company, 310 South Michigan Ave., Chicago 4, Illinois.

Upon motion made, seconded, and carried, it was decided to hold the next meeting of the National Council on Thursday, April 4, 1946.

There being no further business, adjournment was taken.

C. R. Addinall, F.A.I.C., assistant director, Research Laboratory, Merck and Company, Inc., Rahway, N. J., addressed the Metropolitan Long Island Chemical Association's meeting, held at the Brooklyn Academy of Music, Brooklyn, N. Y., on March 19th. Dr. Addinall's subject was "Streptomycin — A Promising New Antibiotic."

CHAPTERS

Baltimore

Chairman, W. H. Hartung *Vice-chairman,* Rev. E. S. Hauber, S. J.
Secretary-treasurer, J. Bernard Edmonds
3816 Greenmount Ave.,
Baltimore 18, Md.
Council Representative, Maurice Siegel
Alternate, J. F. Muller
News Reporter to THE CHEMIST, Ralph Lamenzo

The Chapter met at the Northway Apartments at 6:30 p.m., February 28th.

Mr. J. B. Edmonds was appointed secretary to fill the vacancy left by Dr. Erdman. Dr. John Glassford was appointed to the Membership Committee, and Dr. Warth, Ralph Lamenzo, and M. Siegel were appointed as a special committee to arrange a fall program for a membership drive. E. Hanzely and M. Siegel were appointed as the Nominating Committee.

The speaker of the evening was Dr. A. G. Christie who spoke on "Licensing of Professional Engineers in Maryland."

During his talk, Dr. Christie made frequent comparisons of the Maryland practice as compared to the Miami chapter's proposal. Licensing of Engineers began in the State of Maryland in 1939, and all applications are passed upon by the Board of Registration for Professional Engineers.

Under the present set-up, Maryland has three categories or classes. The first consists of college graduates with four years minimum experience. The second class comprises the non-college graduates who must take examinations. The third class is made up of applicants over thirty-five, with long years of practice in engineering.

There is not much evidence that the act has helped the engineers to be better recognized by the public as experts, nor has it been instrumental in increasing their incomes. While this act does protect the public in general by certifying that a certain individual is an engineer, it does not, however, prevent a licensed engineer from passing himself off as any other type of engineer than the one for which he originally qualified. This point calls for a code of ethics, but to date none exists. After his talk Dr. Christie answered many questions from the floor.

Our next meetings will be held on March 29th at Remson Hall, April 11th and May 16th at Loyola College.

CHAPTERS

New York

Chairman, A. Lloyd Taylor *Vice-chairman,* Lloyd W. Davis
Secretary-treasurer, John J. Miskel
National Oil Products Company
Harrison, New Jersey
Council Representative, Elmore H. Northey

News Reporter to THE CHEMIST, Arthur De Castro

The Chapter met at No. 2 Park Avenue, New York, N. Y., on March 22nd, with A. Lloyd Taylor, chairman, presiding. Student medals were presented to the following students, majoring in chemistry in universities and colleges in the New York area, in recognition of scholarship and the personal qualities of integrity and leadership: David Edelson, Polytechnic Institute of Brooklyn; Florence Goldberg, Brooklyn College; Carol W. Herrmann, Queens College; Corinne Judson, New York University at Washington Square; Richard J. Kandel, New York University at University Heights; Morton Milberg, Rutgers University; Stanley Tannenbaum, College of the City of New York; Serge N. Timasheff, Fordham University.

The first speaker of the evening was Dr. John N. Street, F.A.I.C., assistant director of laboratories, The Firestone Tire and Rubber Company, Akron, Ohio, who discussed "Synthetic Rubber—What Now?" Several factors will affect the use of synthetic rubber in the future. Among these are price, political factors, and sociological factors. The recommendations of a committee which recently reported on the subject were, in part, that one-third of our rubber should be synthetic; that research and development on synthetic rubber should be continued; and that ultimately the synthetic rubber plants should be disposed of to industry. Dr. Street also compared synthetic and natural rubber under conditions of various uses.

Dr. Lorin B. Sebrell, director of research of The Goodyear Tire and Rubber Company, Akron, Ohio, discussed "Plastics as Material of Construction." He exhibited articles and materials designed for many purposes, including Pliofilm, which is now largely used in the packaging field. Chemists in the Goodyear laboratory recently produced a Pliofilm fabric, which is suitable for upholstery and luggage, but supplies of this fabric will not be on the market until natural rubber, from which it is produced, becomes more available.

The Metalsalts Corporation, Paterson, N. J., and Interchemical Corporation have purchased thirty-two acres of land in Hawthorne, N. J., on which a modern plant will be erected.

Pennsylvania

Chairman, Harold A. Heiligman *Vice-chairman,* Harold M. Olson
Secretary-treasurer, Kenneth E. Shull
Philadelphia Suburban Water Company
762 Lancaster Avenue, Bryn Mawr, Penna.
Council Representative, John M. McIlvain
News Reporter to THE CHEMIST, John H. Staub

A meeting was held March fifth, at the Engineers' Club, Philadelphia, Penna. Mr. Harold Heiligman, chairman, presided.

The speaker of the evening was Dr. Horace M. Weir, who spoke on the "German Synthetic Oil Industry."

Dr. Weir opened his talk with a short historical background of the oil situation in Germany, where he had spent some time before the start of World War II.

He stated that Germany is a "have not" nation. She had no raw materials to meet industrial development, except coal. So far as oil is concerned, prewar Germany could produce only about seven per cent of its needs from fields within its borders up to 1936. This was increased to fifteen per cent in four years. After the Nazi party gained control, no reliable figures on petroleum consumption were available to the public.

After World War I, Germany had an overproductive capacity of fixed nitrogen; this equipment was utilized to hydrogenate carbon monoxide to methyl alcohol.

In 1923, Berelius hydrogenated coal. I.G.F. was immediately interested, and in 1926 undertook the hydrogenation on a pilot plant scale. By 1929, sufficient success had been shown in the hydrogenation of coal to interest Standard Oil of New Jersey.

In 1934, I.G.F., in cooperation with the German government, started a program to make Germany independent of the outside world, and as early as 1937 made plans to operate the chemical industries of conquered countries.

By April, 1944, sixteen hydrogenation plants existed with a total capacity of four million tons of petroleum produced a year. In May, 1944, intensive bombing by the Allies started, and in February, 1945, the production was substantially zero.

Dr. Weir next described the process for the hydrogenation of coal. It consists of raising the hydrogen content from 5-6 per cent to 12-13 per cent, at which point liquefaction occurs.

The hydrogenation occurs at a pressure of 200 atmospheres. The carbon monoxide present in the hy-

drogen is removed by ammoniacal copper carbonate before use.

The coal is strip-mined, dried, and milled; then taken to bunkers at the hydrogenation plant.

The coal (40 per cent of charge) is mixed with catalyst (5 per cent) (residue from aluminum process) and pasteing oil is added to form a paste which is pumped to heat exchargers. The temperature is raised to 430 C., and then the paste is pumped to the reactors which operate at 475-500 C., the temperature being controlled by the addition of hydrogen. After the hydrogenation step, the mixture is pumped to a catch-pot and separated. The gas and volatile hydrocarbons go to a pressure letdown-stage, and then are purified.

The next process described was the Fischer-Tropsch process for the synthesis of hydrocarbons. This process consisted of hydrogenating a purified water-gas using a cobalt catalyst. A 25-per cent yield of gasoline blending stock was obtained, in addition to soft and hard waxes which were used in soap manufacturing.

After a short discussion period, the meeting adjourned.

Washington

President, Louis N. Markwood *Vice-president,* William L. Hill

Secretary-treasurer, Royal E. Rostenbach

319 North Quincy Street, Apt. 1
Arlington, Virginia

Council Representative, Walter J. Murphy

Reporter to THE CHEMIST, H. I. Feinstein

The Chapter held a dinner meeting at the Wardman Park Hotel, February 19th, with Mr. L. N. Markwood presiding. After the routine business, the members and guests were addressed on "The Scientific Civil Service" by Dr. M. H. Trytten. Dr. Trytten is on leave of absence as professor of physics at the University of Pittsburgh, and during the war served with OSRD, WMC, and the Manhattan Project. At present, he is director of the Office of Scientific Personnel, National Research Council and a member of the Advisory Committee on Scientific Personnel.

Dr. Trytten emphasized the problems that face the Government in the post war years in staffing its agencies with qualified scientific personnel. The increasing participation of the Government in enterprises requiring scientists and the shortened supply of such personnel makes the problem a difficult one.

For these and other reasons, the Civil Service Commission and the Council of Personnel Administration cooperated in setting up the Advisory Committee on Scientific Personnel to study the overall picture and make recommendations. The ACSP has been very active since its formation. It has been concerned with two goals: First, to encourage the professional growth of the scientific employee by facilitating additional study and training both on and off the job, and second, to achieve more satisfactory Civil Service Rules and Regulations for scientific personnel.

Certain policy principles have been formulated around which specific recommendations will be made. Some of these principles are: The appreciation of the highly specialized nature of scientific work; a certain degree of autonomy for agencies in the procurement of scientific personnel without violating the merit system; obtaining outstanding scientists to direct scientific work; the upward revision of salaries paid to the more productive scientists; beginning salaries of scientists in any grade to be left to the discretion of the agency concerned; greater opportunity for attendance at scientific meetings; establishment of fellows, exchange scientists, and special consultants; and greater efficiency in all types of personnel actions.

It may be of interest to note that the British Barlow Committee has been making an independent study of the Scientific Civil Service in Britain and their recommendations show a striking similarity to the policy principles of the ACSP.

It is apparent that the adoption and putting into operation of the recommendations of the ACSP will do much to elevate the scientist in general and the Government scientist in particular to the level to which his achievements entitle him.

After a discussion in which the audience freely participated, the meeting was adjourned.

Walter J. Baeza, F.A.I.C., president of the Industrial Research Company, New York, and author of the book "A Course in Powder Metallurgy," addressed the Philadelphia Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, on December fourth at the Engineers' Club in Philadelphia on the "Significance of Powder Metallurgy."

For Your Library

ORGANIC PREPARATIONS. By Conrad Weygand. University of Leipzig. *Interscience Publishers, Inc.*, 1945. 534 pp. Price $6.00

This book is a translation of Part II, "Reaktionen" of Conrad Weygand's *Organisch-chemische Experimentierkunst*, published in Leipzig in 1938. The English translation differs from the German original mainly in that extensive literal quotations of preparations from *Organic Syntheses* have been replaced by references to the corresponding volumes of *Organic Syntheses*.

The book is divided into thirteen chapters. The content of each chapter is based on the formation of the various linkages of the carbon atom and their fission. For example, Chapter 1 is entitled "Formation of Carbon-Hydrogen Bonds"; Chapter 2 is "Formation of Carbon-Halogen Bonds".

An unusually large number of laboratory procedures are described. The descriptions are necessarily brief but when more information is desired it may be easily located since each procedure is identified by references to original articles. There are 1605 references listed, most of which are concerned with the preparation of organic compounds.

Descriptions are given for a wide variety of compounds. For the most part those compounds that may be found in nearly any elementary laboratory manual of organic chemistry are intentionally omitted. Although there are many well-known preparations included, there are also a large number not so well-known. The following list, selected at random, gives some idea of the wide variety and unusual nature of many of the compounds described: Dibromocholesterol; ethylchloroglyoxalate; tetralin peroxide; quinolylglyceric acid; lead tetraacetate; acrolein diethyl acetal; formic acetic anhydride; o-aminobenzaldehyde; acetyl nitrate; beta methylcrotonaldehyde acetal; tetraphenylallene; tridecanoic acid; alpha pyrrole aldehyde; phenyl acetaldehyde; 2-acetylcyclohexane; ethylethylene tetracarboxylate.

Even though a large number of preparative methods are given the author still finds room for a considerable amount of descriptive material of a general nature. For example, the section on Grignard reactions is preceded by seven pages of discussion on the Grignard reagent.

There is a good index section. The volume is satisfactorily bound and printed and should be a worthwhile addition to any chemical library.

—Charles A. MacKenzie, F.A.I.C.

ELECTRONIC INTERPRETATIONS OF ORGANIC CHEMISTRY. By Dr. A. Edward Remick. *John Wiley and Sons.* 474 pp. 5½" x 8½". $4.50

While intended to serve as a review and advanced textbook, this book may be considered as an ad interim report on the state of the art of preparative organic chemistry. It presents qualitative generalizations of wide applicability and postulates twenty-nine basic principles underlying organic reactions as they are at present understood. Where, in the opinion of the author, the available data warrant more definite conclusions, thermodynamic equations are given. While the book goes a long way toward establishing road signs along the pathway of organic synthesis, it leaves one with a realization of how much work is still to be done before synthetic organic chemistry can be considered as being based on a truly scientific basis.

The concise statement of the basic principles in Appendix V is particularly noteworthy.

—A. S.

Additional Vested Patent Abstracts Available

The second and final supplement to the abstracts of vested chemical patents is now available from the Office of Alien Property Custodian, Chicago 3, Illinois, for $1.00. Abstracts of about 800 patent and patent applications are included in it.

I. G. Farbenindustrie Data Available

An economic survey of data on the I. G. Farbenindustrie, including the output of light metals, dyestuffs, chemicals, pharmeceuticals, synthetic rubber, and other products, sales policies, production techniques, personnel, and industrial acquisitions, was prepared by German industrial and scientific personnel under the direction of Lt. Col. A. E. Link, Chemical Warfar Section, U. S. Army, during June and July, 1945. This survey is now available in microfilm form only for $6.00. In addition, four rolls of microfilm covering supplementary material in the original German are available for $24.00. Checks should be made payable to the Treasurer of the United States and should be forwarded with the order to the Publication Board, Department of Commerce, Washington 25, D. C.

Report on Animal Glue

The Animal Glue Information Service of the National Association of Glue Manufacturers, 55 West 42nd Street, New York 18, N. Y., has just released a ten-page typewritten report discussing animal glue and its relation to reconversion and peace. It also includes a chart of animal glue, its history, and a short discription of the commercial application of animal glue in the chemical industry.

Philips Research Reports

A new bi-monthly scientific journal, entitled "Philips Research Reports", to cover theoretical and experimental research in physics and chemistry, is announced by Dr. O. S. Duffendack, president of Philips Laboratories, Inc., affiliate of N. V. Philips, at Irvington, N. Y. It is edited by the Research Laboratory staff of N. V. Philips Gloeilampenfabrieken of Eindhoven, Holland. Subscription orders are handled by Elsevier Publishing Company, Inc., 215 Fourth Avenue, New York, N. Y. The yearly subscription price for six issues is $5.00 including postage.

Applications from candidates for the second chemical scholarship established at the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., by the Permatex Company, Inc., of Brooklyn, are now being accepted. This new scholarship of $2,000 will honor the late Dr. Irving W. Fay, faculty member of Polytechnic for more than thirty years.

The Dow Corning Corporation, P. O. Box 592, Midland, Michigan, announces that a booklet is available concerning DC Mold Release Fluid and DC 7 Compound used to secure releases of plastic materials fabricated by injection or compression molding, pressure laminating, and casting.

Soy Bean Utilization Patents

The Office of the Alien Property Custodian, Field Building, Chicago, has announced that a select list of patents relating to soy bean utilization is available for license by the Custodian.

This list represents a selection, from among the hundreds of patents on soy beans, of those which have a possible significance in the American economy. The choice of twenty-six items was made by the Bureau of Industrial Chemistry, U. S. Department of Agriculture.

The Frozen Food Institute, Inc., 90 West Broadway, New York 7, N. Y., has made available several education papers as a result of its research work. These include, "Bacteriology of Frozen Foods" at fifty cents per copy, and "List of Processors and Packers in U. S. A." at $2.00 each.

The National Association of Manufacturers has reprinted the speeches delivered at the symposium on patents and research at the Golden Anniversary Congress of American Industry, in a pamphlet, entitled "Industrial Research and Patents." It contains the addresses of Patent Commissioner Casper W. Ooms, Dr. E. R. Weidlein, F.A.I.C., director of the Mellon Institute of Industrial Research, and Bruce K. Brown, vice president of Standard Oil Company of Indiana. Copies may be obtained from Edward Stone, NAM Committee on Patents and Research, 14 West 49th Street, New York 20, N. Y.

Five hundred selected students from India will study American technical methods and do graduate work in American universities this year, according to the Iranian Institute, New York, N. Y. Dr. S. Chandrasekhar, who will be one of the Indian instructors in the new Indian department to be added to the Iranian Institute, said that while before the war most Indian students studied in England, he expected that in the future more would study in the United States.

Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y., announces the inauguration of an Employees' Profit-sharing Plan, whereby their regular employees are rewarded, in addition to their compensation, with a share in the corporation's profits.

Service To Institute Members

The columns of THE CHEMIST are available without charge to all members of THE AMERICAN INSTITUTE OF CHEMISTS who are either seeking chemists or looking for new positions.

Chemists Available

Analytical and Research Chemist. M.S. University of Michigan; F.A.I.C. Age 45, married, no children. Desires laboratory and/or factory position of some responsibility. Experienced in explosives, rubber, chemicals, war gases, coated paper, steel, non-ferrous metals, cement, silicates, and cleansers. Worked on analyses, methods development, and plant research and development. Held place of group leader, foreman and chief chemist. Quickly available. Location of minor importance. Salary commensurate with training, ability and experience. Please reply to Box 41, THE CHEMIST.

Technical Director, F. A. I. C., Ph.D. Established record in development, research and manufacturing controls. Experienced in the production, control and development of pharmaceutical and food products. Knowledge F.D.A., F.T.C. regulations. Age 35, married. Please reply to Box 43, THE CHEMIST.

Research Director, Ph.D., F.A.I.C. Available because of reorganization seeks new permanent position of first grade responsibility. Experienced in working with top executives. Wide knowledge of industrial chemicals, both organic and inorganic and their practical application to consumer needs. Successfully organized and handled all phases of research and deveopment, including pilot plant to full scale production. Twenty years' experience includes developments in heavy and fine chemicals, detergents, textiles, metal processing, pharmaceuticals, solvents, soaps, cosmetics and specialities. Physical-organic chemist and licensed chemical engineer. Cooperative enthusiastic leader. Located near New York but will move. Please reply to Box 45, THE CHEMIST.

Technical Coordinator: Extensive chemical and engineering background, available through organization policy change. Offers twelve years experience in petroleum and coal tar research; pilot plant and production; supplemented by several years as technical service director in allied fields; patents; publications; advertising and technical association activities. Prefers liaison work between research, production, sales, advertising departments and public with company in technical sales capacity. Please reply to Box 47, THE CHEMIST.

Chemical Condensates

Ed. F. Degering, F. A. I. C.

"It is quite obvious that, if scientists are to come out from their 'ivory towers' and to participate in public affairs, they must, as you say, approach these public matters with the same objectivity as they do apply to their scientific work. Otherwise, their contribution is close to being valueless, or at least is nothing more than the contribution made by other public-spirited but non-technically trained individuals. Too frequently when scientists turn from scientific to social matters, they overlook entirely the scientific approach." —*Walter J. Murphy, F.A.I.C.*

About 5000 new and improved products and procedures are by-products, according to A. L. Baker of Kellex Corporation, of the atomic bomb development.

Streptomycin, an antibiotic from the good earth, is a product of *Actinomyces friseus,* a mold-like organism which helps to give to fresh plowed earth its distinctive smell. It is effective against gram negative bacteria which cause cholera, dysentery, tularemia, typhoid fever, and undulant fever.

Technical progress makes it possible for us to rely on synthetic rubber for about 85 per cent of the requirements for rubber.

"What do you see when you look at a forest? Just a breathtakingly beautiful sight? Or do you see all that the chemist sees here? Do you see strong and versatile plastics in a hundred colors for a thousand uses? Do you see amazing new weatherproofed plywood for tomorrow's better homes...laminated beams and arches stronger than the mightiest solid timber, made possible through better adhesives? Do you see soft negligees of man-made silk...great quantities of smokeless powder... rolls of newsprint for your morning paper...reels of movie film for home entertainment? All these and many more items of beauty, strength and utility the chemist makes from wood, holding out brighter hopes for a better future."—*Monsanto Magazine.*

Melamine, which was discovered over one hundred years ago by a Swiss chemist, is another chemical which outdid Rip Van Winkle.

Twenty-five tons of calcium nitrate a day from a small unit is expected to result from the method developed at the University of Wisconsin by Daniels, Cottrell, Gilbert, and Hendrickson. This is claimed to be cheaper than any other known method of nitrogen fixation.

Meeting Dates

Apr. (date to be announced). Miami Valley Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Meeting in Columbus. Speaker, G. F. Deeble. "The Chemists' World".

Apr. 2. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Walter J. Murphy, editor, *Industrial and Engineering Chemistry*. "The Chemist as Demobilized from the Armed Forces."

Apr. 11. Baltimore Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Loyola College, Baltimore, Maryland.

MAY 3 New York Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. No. 2 Park Avenue. Dinner 6:30 followed by meeting.

May 16. Baltimore Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Loyola College, Baltimore, Maryland.

May 17-18. Annual Meeting. THE AMERICAN INSTITUTE OF CHEMISTS. Biltmore Hotel, New York, N. Y. Medal presentation and dinner, May 17th, to Mr. Robert Price Russell. May 18th, Visit to Standard Oil Development Company's Laboratories, Elizabeth, N. J. (Please refer to page 126).

MAY 31. Chicago Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Avenue, Chicago. Dinner 6:15 p.m. followed by business meeting.

June (date to be announced). Miami Valley Chapter. THE AMERICAN INSITITUE OF CHEMISTS. Student Medals presented to outstanding chemistry students in area.

Robert J. Moore, F.A.I.C., addressed the Southern Federation of Paint and Varnish Production Clubs, March 21st, at a meeting held at the Hotel Jung, New Orleans, Louisiana. Dr. Moore's subject was "New Developments in Coatings."

A. Lloyd Taylor, chairman of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, addressed the Association of Research Directors, New York, N. Y., on March seventh. Dr. Taylor's subject was "Problems of Organizing Industrial Research."

Robert Price Russell, president of the Standard Oil Development Company, who will be awarded the gold medal of THE AMERICAN INSTITUTE OF CHEMISTS on May seventeenth, addressed the North Jersey Section of the American Chemical Society, March eleventh, at Newark, N. J. His subject was "A Survey of Strategic Bombing of Oil Plants."

PLACE A double guard ON THE QUALITY AND UNIFORMITY OF YOUR PRODUCT

In production . . . in laboratory control . . . let B&A Reagents and Fine Chemicals stand "double guard" over the quality and uniformity of your product . . .

As raw materials, for example, B&A Fine Chemicals offer an extra measure of purity not obtainable in ordinary process chemicals. With them, you can build quality into your product from the start. With them, you may find that purification processes can often be avoided or cut to a minimum, and manufacturing costs reduced.

For chemical control, B&A Reagents are always thoroughly dependable and reliable . . . "precision made" to decimal-point accuracy for your most exacting analyses. With them, you work in certainty . . . protecting your product every step of the way until it comes "off the line" worthy of your guarantee.

So, when quality counts, be sure! Specify General Chemical B&A Reagents and Fine Chemicals for *every* possible operation . . . in production . . . in chemical control . . . in the research laboratory!